

REMARKS

Claims 1-4 and 6-8 are currently pending in the present application. The grammatical error in claim 5 has been amended and is not intended to change the scope of the claim.

Borokov does not disclose “excision”

Claims 1-3, and 6 were rejected under 35 U.S.C. §102 as being anticipated by Borokov et al (WO 01/11058). Applicant respectfully disagrees. The Examiner has stated that Borokov discloses the appropriate Fragment (F), Recombinase (R), Excision (X), and Vector (V) sequences. Applicant would like to note the distinction between an “excisionase” and a “recombinase.” An “excisionase” is a site specific enzyme which removes the DNA up to and including portions of the specific excision sites. Excisionase enzymes identify a specific DNA Sequence and cleave the DNA at a known position, thus leaving a defined DNA product. The excisionase cleavage is either within or beyond the excisionase recognition sequence leaving a product without a remaining excisionase recognition sequence. The DNA between the excisionase recognition sequences is also completely removed. A “recombinase” is a recombination enzyme which inserts or removes DNA between two recombinase recognition sequences. The recombinase recognition sequence remains at the position of insertion/removal. Therefore, an excisionase cleaves the DNA removing any sequences up to and including the recognition sequences while a recombinase recombines the DNA at or between the recognition sequence leaving copies of the recognition sequences at the site of recombination. It should be respectfully noted that the Examiner incorrectly identifies LoxP02, LoxP05, and Lox511 as “excisionases” rather than “recombinases.”

Borokov has developed complicated schemes to create “dead” recombinase sites which are no longer active. Using the scheme created by Borokov, a series of exclusive recombinase sites are used to insert DNA fragments, remove vector sequences, and specifically insert the next DNA fragment. Borokov does not use or describe the use of “excisionase” sites to cleave the vector/recombination sites from the final DNA product. The product produced by Borokov would yield a series of DNA fragments punctuated by “dead” recombinase sites. Thus the product produced by Borokov retains the “recombinase sites” and is not a linear series of desired

fragments.

Borokov Product = ~R1-F1-R1-F2-R2-....-FN-RN-R1~

The present invention uses a combination of recombinase and excisionase to remove the vector/recombinase DNA leaving a series of fragments without intervening DNA sequences:

Disclosed Product = ~F1-F2-F3-...-FN~

The scheme described in the current application uses recombination to assemble the fragments and excisionase to remove the intervening sequences. The excisionase destroys the recognition sequence during the course of excision. Therefore, the final product is a linear assembly of desired fragments. Little or no intervening excisionase recognition sequence remains between the assembled fragments and NO functional excisionase, recombinase or vector sequences are retained.

Because recombinase is not the same as excisionase, the Borokov application does not disclose use of an “excision” site, “excision” of vector sequences, or “excision” of product DNA. Borokov does not anticipate the current claims because Borokov **does not disclose each and every element of the claimed invention.**

Declaration of Dr. Bennett antedates Cheo

The Applicant's present invention was conceived and reduced to practice prior to the publication of US2002007051 by Cheo. The attached Declaration under USC 1.131 by Dr. Bennett describes the recombination system and its use. The attached Exhibits A & B demonstrate the invention was conceived and reduced to practice prior to October 31, 2001. Therefore obviousness arguments based on Borokov and Cheo are not applicable.

CONCLUSION

The references cited do not disclose use of an excisionase to remove the undesired recombinase and vector sequences. Therefore each and every element of the claimed invention is not disclosed, anticipated or obvious.

In view of the foregoing amendments and remarks, Applicant respectfully submits that the pending claims are in condition for allowance, and favorable action is hereby requested. If a telephone interview would be of assistance in advancing prosecution of the subject application, the Examiner is requested to telephone the undersigned at the number provided below. Applicant believes all fees due have been paid. If, however, a fee is due, the Commissioner is hereby authorized to charge such fee to Deposit Account No. 50-3420, Attorney Docket No. 31175413-003002 (HOUMDB).

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Respectfully submitted,

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